## REMARKS

Applicant expresses appreciation to the Examiner for consideration of the subject patent application. This amendment is in response to the Office Action mailed May 11, 2005. Claims 1-23 were pending, claims 10-14 were allowed, claims 1, 3, 4, 15, 17-20, 22 and 23 were rejected and 2, 5-9, 16 and 21 were objected to. Applicant thanks the Examiner for the allowed claims 10-14.

### 35 U.S.C. § 102(b) Anticipation Rejections

The Office Action has rejected Claims 1, 3, 4, 15, 17-20, 22 and 23 under 35 U.S.C. § 102(e) as being anticipated by Kajiya et al, U.S. Patent No. 5,557,596 (Kajiya). In order to explain the differences between the prior art and the current claims, a description of Kajiya will be provided and then followed by a discussion of how the current claims are distinguished over the prior art.

Kajiya teaches a method for using a double frame buffer and screen chunks to reduce the amount of depth memory used (Col. 10, lines 47-60). The double screen band buffer receives data for one side of the double screen band buffer and sends image data to the compositing buffer from the other side of the double screen band buffer (Kajiya col 60, 63-66). Once output of a band is complete, the buffer sides are swapped where the receiving side then sends data and the sending side then receives data (Kajiya col 60, 66-67).

Kajiya teaches double buffering even though the double buffers are smaller than conventional double buffers. This means that Kajiya teaches the use of a pixel frame buffer in combination with a smaller double buffered rendering area. This increases the frame buffer memory used by Kajiya by two screen band buffers or two chunk buffers, whereas the present invention uses only the single frame buffer.

The present invention does not use double buffering. Claim 1 includes the limitation of "enabling **a single pixel frame buffer** for simultaneous rendering and display in a computer image generator." This limitation is also included in paragraph (d) of claim 1. The prior art does not teach or suggest using a single pixel frame buffer.

Applicants teach subdividing a screen into screen bins to allow a single pixel frame buffer

to simultaneously receive and send data for display (Application claim 1; page 7, lines 18-19). This is significantly different than swapping buffers because a hardware interlock is not required to be used. The simultaneous receiving and sending of data of Applicant's method included in claim 1 includes the step of "displaying at least one rendered screen bin before the rendering of all the screen bins has completed for the single pixel frame buffer." Kajiya must complete rendering for an entire buffer the buffer data can then be output.

Kajiya's remedy for overload requires aggregating objects to reduce the processing time for a band (Kajiya col 60, lines 21-28). Kajiya does not teach simultaneously receiving and sending data for display to a frame buffer, but instead requires a double screen band buffer that alternates receiving and sending data every band. The single buffer of the present invention does not switch like a double buffer and does not need double buffering because the delay time between rendering and displaying of bins can be modified.

Each screen bin is rendered and stored in the pixel frame buffer. After at least one screen bin row has been rendered, the buffer may be sent to the display (Application claim 1; page 11, lines 5-14). Since the entire pixel frame buffer is present, the remedy for overload is a change in the delay from display start to rendering start (Application figures 7-9 showing adjustment timing; figures 10-11 showing overload timing; page 13, lines 3-7).

The Office Action states that Kajiya teaches a method for displaying at least one rendered screen bin before the rendering of all the screen bins has completed for the single pixel buffer (Office Action Page 3). However, Kajiya does not use a single pixel buffer for their display method, but instead uses a double buffer sized to store a frame band or a chunk. Kajiya must render an entire buffer before it can switch buffers for output. The present invention allows part of a frame buffer to be output before rendering for the buffer is complete.

Kajiya's display method provides more memory for double buffers with frame bands (Col. 60, lines 62-67), while Applicant claims an entire single pixel frame buffer without additional double buffering. Kajiya's double buffer can only receive or send data during a band cycle (Col. 60, lines 63-66), while Applicant's system uses an entire single pixel frame buffer (Application Claim 1) that can simultaneously receive and send data (Application Claim 1).

Since Kajiya's method limits writing to the band that is not being displayed, the next

band is displayed right after the current band finishes (Col. 60, lines 63-67). In contrast, the single pixel frame buffer allows the Applicant's solution to adjust the timing of rendering start versus display start (Application figures 7-9 showing adjustment timing; figures 10-11 showing overload timing; page 12, lines 18-19). Kajiya's solution to overloading is to aggregate objects (Col. 60, lines 26-28). Kajiya does not disclose a remedy for overloading by controlling of the start of rendering with respect to the start of displaying.

The Office Action states that Kajiya shows the step of displaying at least one rendered chunk before the rendering of all the chunks has completed from a buffer (Office Action Page 3). However, Kajiya does not show displaying at least one rendered chunk in a buffer before rendering of all the chunks in the buffer, but requires rendering an entire screen band buffer before that buffer is displayed (Col. 60, lines 59-67).

Kajiya cannot render more or less than an entire buffer with his method of double buffering because only one band or chunk is being composited at a time (Col. 60, lines 63-66). Applicant's method does not require an entire buffer to be filled before the buffer is displayed. Applicant's invention involves the adjustment of timing the number of screen bins that are rendered before display (Application claim 1; Application page 12, lines 18-19).

Since Kajiya does not show or teach a single pixel frame buffer, a variable number of completed screen bins before display, or a remedy for overload involving distributed processing time Kajiya et al. does not anticipate applicants' claim 1, 15, and 20, and the claims depending therefrom.

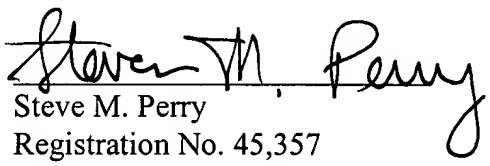
## CONCLUSION

In light of the above, Applicant respectfully submits that pending claims 1-25 are now in condition for allowance. Therefore, Applicant requests that the current rejection be withdrawn, and that the claims be allowed and passed to issue. If any impediment to the allowance of these claims remains after entry of this Amendment, the Examiner is strongly encouraged to call Steve M. Perry at (801) 566-6633 so that such matters may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 20-0100.

DATED this 11th day of August, 2005.

Respectfully submitted,



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